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Managerial Discretion and Expense Preference Behavior

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Managerial Discretion and Expense Preference Behavior

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Abstract

One of the most interesting developments in the theory of the firm has been the introduction of a utilities function which includes personal or group goals of executives in addition to the classical profit motive. Considerable debate has raged over the economic assumption that the large corporation, through the decisions of its managers, attempts to maximize its profits. Closely related to the notion of profit maximization is expense preference behavior of managers which would indicate a "preference" for expenses over firm profit.

This study examines the market structure effects on expense preference behavior and, for the first time, tests are made using data which unambiguously reflect market structure differences between firms in the sample. The results provide evidence which is contrary to the expense preference hypothesis.

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MANAGERIAL DISCRETION AND EXPENSE PREFERENCE BEHAVIOR

Economists have long been interested in managerial motivation. As Ciscel and Carroll (4) recently explain, considerable debate has raged over the economic assumption that the large corporation, through the decisions of its managers, attempts to maximize its profits. Closely related to the notion of profit maximization is expense preference behavior of managers which would indicate a "preference" for expenses over firm profits. The tension between profit maximization behavior and expense preference behavior of managers has been recently discussed by Larner (12).

One condition which could affect a firm's ability and willingness to engage in expense preference behavior is the market structure in which it operates. This study examines the market structure effects on expense preference behavior and, for the first time, tests are made using data which unambiguously reflect market structure differences. The results provide evidence contrary to the expense preference hypothesis and the findings are quite consistent with the previous research of Ciscel and Carroll (4), Larner (12), and Rhoades (21).

I. INTRODUCTION

The importance of managerial discretion in the operations of large corporations has been well recognized. The separation of ownership from control and imperfection in goods and/or capital markets permit the managers of large firms to pursue non-profit maximizing goals--salary, power, security, prestige, etc. Indeed, one of the most interesting developments in the theory of the firm has been the introduction of a

utility function that includes personal or group goals of executives in addition to the classical profit motive (1, 2, 3, 4, 6, 20, 21). One such approach that has received substantial attention in recent years is the expense preference theory, which has its theoretical origins in the works of Williamson (24, 25) and Rees (20).

The expense preference theory views the firm as maximizing utility by pursuing non-profit-maximizing policies. In particular, it posits that managers have positive preference for staff expense, managerial emoluments, and funds available for discretionary use and they increase such expenses beyond profit maximizing levels (6, 20, 24, 25). In its narrow operational form, the expense preference theory postulates that monopoly firms with managerial discretion will hire more staff and/or pay higher managerial wages than will competitive profit-maximizing firms, ceteris paribus (6). The expense preference theory hypothesizes that firms in less competitive markets will, other things being equal, hire more staff and/or pay higher wages than will the firms in more competitive markets (24).

Though Williamson himself emphasized the importance of empirical studies in ascertaining the existence of expense preference behavior in his early work (24, 25), much of the serious empirical investigations of the subject have only recently begun. Edwards developed an empirical framework capable of testing the expense preference hypothesis (6) and applied it to banking markets. The original research, as well as the work of several researchers later applying similar frameworks and data, found the number of employees (or the amount of wage and salary expenses) in markets possessing monopoly power to be higher than in

competitive markets (6, 8, 9). One exception is Rhoades who, using a banking data set and models quite different from Edwards', found little statistical evidence to support the expense preference hypothesis (21).

II. BACKGROUND ON PREVIOUS EMPIRICAL WORKS

Most of the empirical studies after (24) have focused on the banking industry for the following reasons:

First, the regulated status and public interest character of banking are both likely to create expense-preference behavior in managers who prefer not to show exceptionally high profits. Previous research has pointed out that a discretionary view of managerial behavior such as the expense preference theory is particularly appropriate to regulated industries (1, 21, 22), where the abridgement of property rights is acute and managers may prefer not to reveal excessive profits. Secondly, the market structures in which banks operate are frequently characterized by monopoly and oligopolistic imperfections: the weakness or absence of competitive pressure may permit managers to pursue their own non-profit-maximizing goals. Also, commercial banks provide a sample of relatively homogeneous units in terms of basic demand and supply conditions confronting the firms (6, 20).[1]

In developing his model, Edwards assumed (a) that expense preference behavior is manifested in the employment of labor (or incurring labor expense) in excess of the profit maximizing levels, (b) that three-firm concentration ratios constitute reasonable indexes of monopoly power, and (c) that the concentration-monopoly relationship is discrete rather than continuous; or, that some threshold level of concentration must be

reached before firms recognize their mutual interdependence and begin to coordinate their activities (5).

Edwards' demand-for-labor equation designed to test the expense-preference behavior then is written (ln = natural logs):

$$(1) \qquad \ln L = b_0 + b_2 \ln W + b_3 \ln r + b_4 \ln Y + h M$$

where L is the number of employees, W is the wage rate, r is the cost of capital, Y is a shift variable representing all nonprice factors that affect demand, and M is the monopoly dummy variable which equals one when concentration is above the required threshold level and zero otherwise; b_0, b_2, b_3, b_4, and h are the usual constant parameters. If the coefficient h is positive and significant then the expense preference hypothesis is affirmed. Equation (1) developed by Edwards forms the basis of the empirical studies that have found evidence supporting the expense preference theory in banking (6, 8, 9).

III. A TEST OF THE EXPENSE PREFERENCE THEORY USING ELECTRIC UTILITY DATA

We noted earlier that previous researchers of expense preference behavior have explained that, for several reasons, the banking industry provides conditions and data particularly well suited for their empirical work. First, managerial behavior expected by the expense preference theory seems particularly appropriate in regulated industries. Second, monopoly or oligopolistic market imperfections, homogeneity in supply and demand conditions, and the public interest character of the banking business are also cited as important characteristics.

It is obvious, however, that the above characteristics, which made banking the target of empirical investigation of the expense preference hypothesis, are even more apparent in the electric utility industry. The industry is regulated, it is of public interest character, is commonly characterized by the separation of ownership from management, and it is quite homogeneous in demand and supply conditions.[2] If these conditions lead to expense preference behavior in banking, one would also expect for them to lead to expense preference behavior by managers of electric utility firms.

Primeaux (18) has shown that, not withstanding the popular belief that electric utilities are natural monopolies, there are a number of U.S. cities in which two electric utilities serve the same market and directly compete with each other. Equipped with this knowledge, we test the expense preference theory using a sample of electric utilities from the cities in which duopolistic competition exists combined with another carefully selected sample of paired electric utilities from cities served by a single monopoly electric utility. This test has some methodological advantage over the banking studies which followed Edwards' framework (6, 8, 9).

Our electric utility data set consists of two rather distinct subsets of firms, monopoly firms and duopoly firms. Thus, it is no longer necessary to assume that a concentration ratio is a suitable index of monopoly power nor that the concentration-monopoly relationship is discrete rather than continuous; these rather strong assumptions were necessary in previous studies. Furthermore, it was hoped that this additional test of expense preference behavior would shed additional

light on our meager empirical knowledge of the theory; that knowledge has been developed almost exclusively from banking industry data.

A proper test of the expense preference theory would compare a group of firms which are expected to be profit maximizers with another group which is able to deviate from profit maximization and survive. In the sample used here, both groups of firms are municipal utility firms; thus, one might raise two questions regarding the appropriateness of the sample. First, whether these municipal utility firms are profit maximizers and second, if so, would they ever deviate from profit maximizing behavior. These two questions are given serious consideration in the following discussion.

As discussed in Primeaux (18), the common impression is that municipally owned firms are nonprofit, public-serving firms, however, their profit performance indicates that they are indeed profit oriented. For example, after discussing the level of profit for privately owned firms from 1950 to 1961, W. G. Shepherd (23) explained that "Despite the common impression, the average rates of return for publicly owned electric suppliers (other than Federal projects) have been almost identical with those of private profit rates." Moreover, data from the Federal Power Commission indicate that municipally owned electric utility firms seek profits. These data show that in 1968 net income amounted to 15.4 percent of sales for privately owned electric utilities and 22.3 percent for municipal electric utilities.[3] P. Mann (14) found that municipally owned firms in his study earned a 7.14 percent rate of return on net investment while privately owned firms earned 6.74 percent. M. Colberg (5) has also discussed the profit orientation of municipally owned

utility firms. So the answer to the first question is that municipal utilities, contrary to the general impression, are profit oriented institutions.

The second question concerns whether these firms would ever deviate from profit maximizing behavior. The sample is composed of two subsets of firms; one subset composed of monopolists, the second subset composed of firms facing competition. Primeaux (18) presents data which show that monopoly firms tend to be less efficient than firms facing competition because of the absence of the spur to efficiency in a monopoly environment. The answer to the second question, thus, is also affirmative: municipal electric utilities deviate from the profit maximizing behavior in a market environment in which there is less competition.

IV. THE NATURE OF ELECTRIC UTILITY DATA

The electric utility sample of this study is composed of municipally-owned electric utilities listed in Statistics of Publicly Owned Electric Utilities in the United States, 1964 through 1968. More recent data was not used because (a) the number of cities in which two electric utilities compete has been shrinking through time (15), and (b) the inclusion of more recent years would, due to the enormous changes in energy cost, etc., make the data of questionable value for comparison purposes (14, 15, 17). Faced with the option of older but better quality data that include a greater number of firms and the newer but less homogeneous data that include fewer firms, we chose the former (15).[4]

Head-to-head competition actually exists in those communities with two electrical systems and consumers have a choice of being served by one firm or the other. In these communities, there are dual distribution systems, two administrative offices and frequently two sets of generating facilities, except in some instances where one of the firms purchases its power requirements. The essential point is that two distinct companies exist in competitive cities providing electric service to consumers. The reader who is unfamiliar with these kinds of situations can obtain more information by referring to Primeaux (18).

In those cities with two rival electric systems, the usual arrangement is that a privately owned firm competes with a publicly owned firm. Primeaux (18) has explained that since privately owned firms operate in more than one city, it is not possible to obtain data allocated only to a city in which they compete. Consequently, previous research of direct electric utility competition has compared publicly owned firms of the competitive subset with another subset of publicly owned firms from monopoly markets. That is the procedure followed here; Table I shows the composition of the sample.

Time series and cross-section data were pooled to enlarge our source of basic information and this procedure produced 198 complete sample observations. An analysis of variance test was applied to ascertain whether pooling of the time series and cross section data was justified. The test results revealed that pooling was permissible, since the calculated F-statistics indicated that the hypothesis of unshifted parameters could not be rejected.

Table I. Municipally Owned Electric Utilities Included in the Study

Duopoly Firms	Matched monopoly firms
Bessemer, Alabama	Florence, Alabama
Tarrant City, Alabama	Scottsboro, Alabama
Anchorage, Alaska	.....[a]
Fort Wayne, Indiana	Richmond, Indiana
Maquoketa, Iowa	Algona, Iowa
Hagerstown, Maryland	Bristol, Virginia
Allegan, Michigan	Niles, Michigan
Bay City, Michigan	Wyandotte, Michigan
Dowagiac, Michigan	Hillsdale, Michigan
Ferrysburg, Michigan	Lansing, Michigan
Traverse City, Michigan	Sturgis, Michigan
Zeeland, Michigan	Petoskey, Michigan
	Carthage, Missouri
Kennett, Missouri	Rolla, Missouri
Poplar Bluff, Missouri	Columbia, Missouri
Trenton, Missouri	Marshall, Missouri
Lincoln, Nebraska	Omaha, Nebraska
Cleveland, Ohio	Springfield, Illinois
Columbus, Ohio	Anderson, Indiana
Piqua, Ohio	Logansport, Indiana
Springfield, Oregon	Eugene, Oregon
Greer, South Carolina	Greenwood, South Carolina
Sioux Falls, South Dakota	Watertown, South Dakota
	Springfield, Missouri
Garland, Texas	San Antonio, Texas

[a]No suitable matching city can be found in Alaska.

V. THE MODEL: A TEST OF EXPENSE PREFERENCE BEHAVIOR IN ELECTRIC UTILITIES

Several difficulties were encountered in our attempt to adapt Edwards' expense preference equation to the analysis of electric utility data. First, data for total wages and salaries or total employment were unavailable for most of the individual electric utilities included in the sample. Our search for a narrow operational definition of electric utility managers' expense preference led us to the "sales and administrative expenses" reported in Statistics of Publicly Owned Electric Utilities in the United States. This expense category seems to be the one most likely to reflect the discretionary influence of electric utility managers who may harbor expense preferences. Additional support for our choice of administrative and sales expense as the variable that would indicate expense preference of electric utility managers comes from Williamson (24) in his original 1963 article. In his study of expense preference, Williamson considered "general administrative and selling expense" as a good proxy for measuring the level of staff activity in the firm.

Another difficulty in adopting Edwards' expense preference model came about because of differences in the natures of the electric utility and the banking industries; these differences necessitated the introduction of an entirely new set of variables in the estimating equation. Our analytical framework suggests the following functional form:

$$\text{Expense} = f(\text{total sales, sales composition, market density, wage rates, monopoly-competition status, state in which the firm is located})$$

The OLS multiple regression equation includes the following variables; where all variables except the dummy variables are in natural logarithms.

Dependent variable:

EXP = Total sales and administrative expenses

Explanatory variables:

TKWH = Total kilowatt hour sale (millions of kwh)

QMIX = Sales composition or output mix: residential KWH sale/total KWH sale

RKWH = Residential KWH sale per customer (thousands of kwh): control for residential market density

INCOM = Per capita disposable income: a proxy for wage and salary rates

DM = Monopoly dummy: monopoly = 1, competition = 0

State dummy variables:

DAL = Alabama

DAK = Alaska

DIN = Indiana

DIO = Iowa

DML = Maryland

DMI = Michigan

DMO = Missouri

DNB = Nebraska

DOH = Ohio

DSC = South Carolina

DSD = South Dakota

DTX = Texas

In short, the equation to be tested is:

$$\ln EXP = b_0 + b_1 \ln TKWH + b_2 \ln QMIX + b_3 \ln RKWH + b_4 \ln INCOM + DM \sum_{i=1}^{12} SD_i$$

where DS's are the dummy variables for the twelve states included in the model. Expected relationships between the sales and administrative costs and the explanatory variables are as follows:

$$\partial EXP/\partial TKWH > 0,\ \partial EXP/\partial QMIX > 0,\ \partial EXP/\partial RKWH < 0, \text{ and } \partial EXP/\partial INCOM > 0.$$

The sign of the coefficient of the monopoly dummy DM is the crucial one for testing the expense preference behavior in the electric utility industry; a positive sign would indicate that the monopoly utility firm incurs a greater administrative and sales expense than its duopoly counterpart; and, therefore, this would support the expense preference hypothesis; a negative sign would reject it. The signs of the state dummy cannot be known a priori.

VI. TESTS AND EMPIRICAL FINDINGS

Table II presents the results of the OLS regression analysis based on the model specification of Section V. The equation performs rather well: the adjusted R^2 is high (.868), suggesting that we are probably not omitting important explanatory variables. The signs of TKWH, QMIX, RKWH, and INCOM conform to theoretical expectations and are all significant; INCOM, however, is significant only at the 12 percent

Table II. Expense Preference--Market Structure Relationship for Municipally Owned Electric Utilities, 1964-68

Explanatory Variables	Regression Coefficient	Standard Error	Significance Level
TKWH	1.003	.046	.000
QMIX	.492	.113	.000
RKWH	-.476	.135	.001
INCOM	.417	.060	.123
DM	-.164	.085	.056
Alabama	-.512	.187	.007
Alaska	.545	.363	.135
Indiana	.316	.194	.106
Iowa	.139	.201	.488
Maryland	-.407	.188	.031
Missouri	.499	.116	.000
Nebraska	-.249	.273	.362
Ohio	.210	.153	.171
Oregon	-.130	.256	.616
S. Carolina	.115	.232	.619
S. Dakota	-1.313	.225	.000
Texas	-.221	.197	.264
Constant	-4.130	2.087	.049
Summary Statistics:			
$\bar{R}^2$	.868		
n	198		

level. Income is probably insignificant because of the role played by the state dummies included in the model; various state dummies serve as shift variables that account for differences in income level, regulatory practices, etc. When the same regression was run without state dummies, the standard error of the income coefficient became much smaller and its significance level became very high (.000). The monopoly dummy DM is negative and is significant at the 5 to 6 percent level.[5]

The significant DM variable shows that sales and administrative expense are lower for a monopoly electric utility firm than for a duopoly electric firm facing direct competition from a rival in the same market. This result is certainly not consistent with the predictions of the expense preference hypothesis. Consequently, our test of the expense preference theory, based on heretofore untested electric utility data, offers evidence which contradicts the theory and some previous empirical results.

Examination of the state dummies reveals that they are significant only for Alabama, Maryland, Missouri, and South Dakota. Signs of the state dummies for Alabama, Maryland, and South Dakota are negative; this indicates that the sales and administrative costs of electric utility firms located in these states are lower than those of the firms located in Michigan (the reference state whose dummy is omitted in setting up the regression equation). The sign of the Missouri state dummy, on the other hand, is positive and indicates a higher level of sales and administrative costs for firms in that state than in Michigan.

Since a recent study found that advertising expenditures were larger for competitive firms than for monopoly firms (15), one might ask if our

findings are biased against the expense preference theory. This question could arise because we use sales and administrative expenses as the dependent variable in our analysis. In anticipation of this question, we tested our model using administrative expenses alone as the dependent variable (advertising was excluded). The results changed very little in terms of the signs and magnitudes of various regression coefficients.

There are two reasons for using sales and administrative expenses as the dependent variable. First, a number of utility firms did not even report sales expenses as a separate item, giving rise to suspicion that sales expense (which amounts to less than 10 percent of the combined sales and administrative expenses in most cases) may have been combined with other administrative expenses. Secondly, as mentioned earlier, Williamson expressed the view that general administrative and selling expense serve as a good proxy for staff expense (24). This insight provides an additional incentive to include sales expense in the specification of our dependent variable.

Our findings that administrative and sales expenses were lower for electric utility firms operating as monopolists than for firms that competed in duopolistic markets were rather unexpected. The results were surprising because Primeaux's 1975 study (18) found that <u>average total costs</u> of electric utility firms was lower for duopoly firms facing competition than for firms in monopoly situations. Our results, however, are really not inconsistent with the earlier findings reported by Primeaux. The results reported here together with the earlier findings do mean that the cost differences found in the earlier study cannot be attributed to managerial slack and expense preference behavior.

VII. SUMMARY AND CONCLUSION

The most recent empirical tests of the expense preference hypothesis have been based almost exclusively on banking data. In this paper, we developed a model applicable to electric utility firms and tested the expense preference theory. Tests based on our sample have two important advantages. First, they do not need to rely on the assumption that concentration ratios are meaningful indexes of market power. The second advantage is that the assumption that the concentration-monopoly relationship is discrete is unnecessary.

Overall, our findings indicate that the monopoly firms in our sample do not indulge in larger sales and administrative expenses than firms in the same industry facing competition; indeed, the competitive firms engaged in higher expenditures. The results of this investigation, therefore, offer evidence contrary to the expense preference hypothesis and are quite consistent with the earlier empirical research of Ciscel and Carroll (4), Larner (12), and Rhoades (21), even though those studies employed different data and statistical models.

FOOTNOTES

[1]Edwards gives an additional reason for choosing the banking industry. That is, the findings of past studies indirectly hint at the possible existence of expense preference behavior in banking. He explains that a number of studies show small positive correlations between monopoly power and bank prices (interest rates) but the lack of any "systematic relationship between monopoly power and bank profitability." Other studies find that increased competition does not diminish bank profitability but does lower bank operating costs. Such findings suggest that "the managements of (monopolistic) banks appropriate part of the profits through expense-preference behavior: by paying themselves higher salaries, hiring excessive staff, or being lax in their supervision, all of which may enhance their utility (and increase costs) while lowering reported profitability" (6).

[2]The privately owned firms in the industry are regulated by state regulatory commissions. Publicly owned firms, which are the firms discussed in the empirical part of this study, are regulated by some sort of regulatory board, at the local level in the communities they serve.

[3]Information obtained from the Federal Power Commission, January 8, 1970. As indicated in the discussion which follows, the timing of this information conforms with the sample years.

[4]"There may have been a break in structure between the period yielding the statistical prior information and that yielding the sample information, in which case one wants pure estimates from the period of interest rather than mongrel estimates averaging two sets of parameters" (11, p. 226).

[5]We experimented with a model that included two additional variables: one to account for the commercial and industrial KWH sale per customer and the other, the ratio of total KWH purchased over total KWH sale. The latter variable was included in this experiment because some studies have shown that it may be more economical for a firm to purchase power than to generate it (10, 18). The addition of these two variables, however, hardly changed the statistical results of our model: The adjusted R^2 was .867 as opposed to the .868 of the original model, signs of all coefficients remained unchanged, and the values of coefficients and standard errors hardly changed. Furthermore, the added variables turned out to be statistically insignificant.

One might ask whether multicolinearity is of concern in our model. Note that all estimated coefficients had theoretically expected signs and standard errors of all variables except income were rather small. The text explains the reason for the large standard error of the income variable. Moreover, when the model was reestimated with a few cases deleted, the signs of all coefficients remained the same and their magnitudes changed very little. As mentioned above, the estimates remained rather stable when some additional variables were added to the model. There is little reason, therefore, to suspect that multicollinearity is affecting the results of this research.

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